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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,936	02/19/2002	Mohsen Kavehrad	823.0116USU	6519

7590 11/29/2005

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EXAMINER	
PHAN, HANH	

ART UNIT	PAPER NUMBER
2638	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/079,936	KAVEHRAD ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 09/15/2005.

Drawings

2. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 9, 10, 12, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Gfeller et al (US Patent No. 6,424,442).

Regarding claims 1 and 12, referring to Figures 1-6, Allen discloses an infrared communications system comprising:

a multi-beam transmitter (i.e., transceiver 20 including a transmitter and a receiver, Fig. 1) for producing an array of diffusing spots (28, Fig. 1) upon a reflecting surface (col. 1, lines 61-65); and

a receiver (i.e., transceivers 22 and 24, each transceiver comprising a transmitter and a receiver, Fig. 1, col. 1, lines 61-67 and col. 2, lines 1-42 and lines 65-67 and col. 3, lines 1-35).

Allen differs from claims 1 and 12 in that he fails to teach a receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots. However, Gfeller in US Patent 6,424,442 teaches a receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots (see Figures 1-16, and see col. 7, lines 47-65 and see abstract section). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one of the diffusing spots as taught by Gfeller in the system of Allen. One of ordinary skill in the art would have been motivated to do this since Gfeller suggests in column 7, lines 47-65 and abstract section that using such the receiver comprising a plurality of receiving elements and wherein each receiving element has an independent field of view that is in line of sight of at least one

of the diffusing spots has advantage of allowing achieving greater field of view and looser alignment between communicating infrared ports.

Regarding claims 2 and 13, Allen further teaches the reflecting surface is a ceiling of a room (Fig. 1).

Regarding claims 9 and 17, the combination of Allen Gfeller teaches each the receiving element is aimed in a different direction (Figs. 1-14 of Gfeller).

Regarding claim 10, the combination of Allen and Gfeller teaches the receiver is a multi-branch receiver (Figs. 1-14 of Gfeller).

5. Claims 3-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Gfeller et al (US Patent No. 6,424,442) and further in view of Gal (US Patent No. 5,497,269).

Regarding claims 3, 4, 14 and 15, Allen as modified by Gfeller teaches all the aspects of the claimed invention except fails to specifically teach the array is in the form of a regular grid. However, Gal in US Patent No. 5,497,269 teaches the array is in the form of a regular grid (Figs. 1-3, col. 9, lines 30-67 and col. 10, lines 1-54). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the array is in the form of a regular grid as taught by Gal in the system of Allen modified by Gfeller. One of ordinary skill in the art would have been motivated to do this since Gal suggests in column 9, lines 30-6 and col. 10, lines 1-54 that using such the array is in the form of a regular grid have advantage of allowing the

concentration of incident irradiance to a small fraction of the pixel area in the detector plan.

Regarding claims 5 and 16, the combination of Allen, Gfeller and Gal teaches the diffusing spots are approximately equidistantly positioned from one another (Fig. 1 of Gfeller and Figs. 1-3 of Gal).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Gfeller et al (US Patent No. 6,424,442) and further in view of Hinton et al (US Patent No. 5,195,103 cited by applicant).

Regarding claim 6, Allen as modified by Gfeller teaches all the aspects of the claimed invention except fails to specifically teach the transmitter comprises a light source, collimating optics, and a spot array generator. However, Hinton in US Patent No. 5,195,103 teaches a transmitter comprises a light source (12)(Fig. 1), collimating optics (24), and a spot array generator (22)(Fig. 1)(col. 3, lines 16-67 and col. 4, lines 1-14 and see abstract section). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the transmitter comprises a light source, collimating optics, and a spot array generator as taught by Hinton in the system of Allen modified by Gfeller. One of ordinary skill in the art would have been motivated to do this since Hinton suggests in column 3, lines 16-17 and col. 4, lines 1-14 and abstract section that using such the transmitter comprises a light source, collimating optics, and a spot array generator has advantage of allowing generating an

array of optical beams or spots and to communicate with an array of optical sensitive devices utilized in applications such as optical computing or photonic switching.

Regarding claim 7, the combination of Allen, Gfeller and Hinton teaches the spot array generator is a holographic optical element (Fig. 1 of Hinton, col. 3, lines 16-67 and col. 4, lines 1-14).

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Gfeller et al (US Patent No. 6,424,442) and further in view of Dubois et al (US Patent No. 5,686,722).

Regarding claim 8, Allen as modified by Gfeller teaches all the aspects of the claimed invention except fails to specifically teach the receiving element comprises a band-pass filter, a concentrator and a photodetector. However, Dubois in US Patent No. 5,686,722 teaches receiving element comprises a band-pass filter (52), a concentrator (54) and a photodetector (56)(Figs. 1-3, col. 5, lines 19-28) . Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving element comprises a band-pass filter, a concentrator and a phtodetector as taught by Dubois in the system of Allen modified by Gfeller. One of ordinary skill in the art would have been motivated to do this since Dubois suggests in column 5, lines 19-28 and that using such the receiving element comprises a band-pass filter, a concentrator and a photodetector has advantage of allowing selecting the wanted signal and eliminating the unwanted signals and signal noise and focusing the

optical beam.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al (US Patent No. 5,245,460 cited by applicant) in view of Gfeller et al (US Patent No. 6,424,442) and further in view of Jannson et al (US Patent No. 5,293,272).

Regarding claim 11, Allen as modified by Gfeller teaches all the aspects of the claimed invention except fails to specifically teach the receiving element comprises a curved holographic mirror. However, Jannson in US Patent No. 5,293,272 teaches the receiving element comprises a curved holographic mirror (Figs. 3 and 19-22, col. 5, lines 3-20). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving element comprises a curved holographic mirror as taught by Jannson in the system of Allen modified by Gfeller. One of ordinary skill in the art would have been motivated to do this since Jannson suggests in column 5, lines 3-20 and that using such the receiving element comprises a curved holographic mirror has advantage of allowing reflecting and focusing the optical beam and reducing the signal noise.

Response to Arguments

9. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

HANH PHAN
PRIMARY EXAMINER